

AVIATION

JULY 2, 1923

Issued Weekly

PRICE 10 CENTS



Naval seaplane delivers newspapers to the Presidential yacht Mayflower.

VOLUME
XV

NUMBER
1

SPECIAL FEATURES

NATIONAL BALLOON RACE
AERONAUTICAL SURVEY OF SOUTH AMERICA
AIRCRAFT DEVELOPMENT SINCE THE ARMISTICE
RULES GOVERNING ST. LOUIS AIRPLANE RACES

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y.
under Act of March 3, 1879.



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GRADUATION

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CURTISS EXHIBITION COMPANY
GARDEN CITY, NEW YORK.



JULY 2, 1923

AVIATION

VOL. XV. NO. 1

Member of the Audit Bureau of Circulations

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THOMAS-MORSE AIRCRAFT CORPORATION

CONTRACTORS TO U. S. GOVERNMENT

ENACADA,



NEW YORK

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THE Wright Aeronautical Corporation announces that it has acquired by merger the assets and business of the Lawrence Aero Engine Corporation.

By this acquisition, the Wright Company adds to its present line of water cooled airplane motors the Lawrence line of air cooled motors.

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GENERAL MANAGER

Vol. XV

July 2, 1923

LAWRENCE & O'NEIL
Editor
VIRGILIO E. CLARK
EDWARD P. WADDE
RALPH H. UPDEGRAD
CONTRIBUTING EDITORS

No. 1

AVIATION

Power Gliding

THE great enthusiasm shown over the recent light plane experiments has caused airplane designers to wonder if there really is a demand for a light plane. If the demand were extensive and continuous it would be supplied. The performance of the French machines is not so unusual as to prove which was presenting it would have an audience, but one of its limitations is now evident.

From an interview with Blériot after the crash of the Dufaux in the tragedy of New Jersey, the newspaper which heralded the approach of the sun glider as the great event of the day, draws the conclusion that the lesson to be learned is that more power is necessary. A disengaging compensation is made between the 480 hp. D.H. and the 35 hp. Dufaux. In other words the light plane is presented as a complete failure due to a insulation assumption. For the temporary failure of the Dufaux was not due to the limited power. Increasing the size of the engine would decrease all values of the experiment. We must look elsewhere for the cause of the trouble.

One of the objections to the light plane is the fact that it costs a long way to landing, requiring a very large field, or several at a time. That is what the light plane class is built for, as fast, as reliable as possible. The pilot who is used to heavy machines and sells square surfaces, does not like field and levels out near the ground with nose 90 to 100 m.p.h. speed. The field is enclosed with trees and protected from the wind due to also very nearly the ground speed. Now, owing to another light plane advantage, the resistance is low and therefore the dissipation is less and the plane must necessarily "float close across the field" before its speed is reduced to the 20 to 25 m.p.h. at which landing is possible. The family flies with the machine out with its size, facilities or power limitations, not with the imperfections of pilot on the new types. Pilots do not yet yet how to use the advantage of low landing speed. In this connection E. T. Hall, well known for his experiments with the M.I.T. glider, writes: "The trouble with us all at Chamonix-Ferney last year was we were not content with gliders flying slow; we wanted to have a good strong resistance on the sandbank such as we were used to on heavy fast machines."

The second difficulty is reliability. The reason the Liberty engine's on the small service airplane safety is because the engine are reliable and are given constant expert attention. It is not a question of additional power but if a good motor will stand fire. The reliability should be the cause to obtain in a small engine than a large one. This will have to be done by the public who have anything to do with the light plane. As for safety of large planes most pilots would rather have ice formed landings in a plane landing at twenty to thirty miles per hour than one in a D.H. Liberty.

The change in interest from gliders to light power has led

us away from a profitable field of study much too soon. It is fortunate that our Boeing Motor in California is to concentrate our efforts upon the same standard and more fundamental problems for a time. After the English contest last October we had only begun to realize how little we knew about glider design. And now, already we are complicating the problem by trying to produce a motor glider, the logical which selling stars are far greater as speed. When we are ready for the light plane it will come and it will have less power rather than more than the French product which demonstrated economical flight in America.

Cost of Airplane Travel

THE remarkable cheapness of travel on German airways is shown in the following quotation from a letter recently received by George Newfield, the business manager of American, from his son, George Newfield, Jr., who is a sailor on the New York amateur racing ship "Neptune."

"Two of the other sailors and myself flew from Berlin to Berlin and back in a Farman cabin airplane for \$2.50 U.S. currency, a total distance of about 480 miles. We were in the air altogether about 5 hr. The plane only made about 80 m.p.h."

The above statement is the kind that creates a very unfortunate impression in the United States. Comparisons are made with the cost of travel by airplane here. It is also noted that only a few trans-transportation routes are operating in this country. The remarkable question is—Why?

Indeed, indeed, indeed—the word cannot be too often repeated. But it is as easily overlooked as forgotten by those who make comparisons between European and American air lines. England, France and Italy are making a vigorous effort to provide an adequate air arm. Germany, debarred from the manufacture of military types of aircraft, is keeping aviation alive by supporting commercial air lines. Through this industry the Germans are learn to make passenger rates automatically low.

Of course, other factors also enter into a comparison of cost of airfare travel here and in Germany. The purchasing power as against the exchange rate of German currency, the cheapness of coal and the cost of labor are such factors. By only the four hundred mile trip would cost in this country about twelve dollars.

Reports like the above lead unconfident persons to conclude that American aviation is behind Europe. This is not the case, except in respect to government encouragement, military, naval and commercial. If returning travelers would tell their representatives in Congress about the progress already and how the government is backing aeronautical progress, much good would result.

Aircraft Development since the Armistice*

Prepared by Engineering Division, U. S. Army Air Service
McCook Field, Dayton, Ohio

In order to present recent developments of the service airplane in as brief a manner as possible, a preliminary outline of airplane status, 1918, service status 1922, is tabulated below. The following section will be used to detail the development of new aviation from the 1918 service division. In the latter section, Ordnance aircraft types are detailed to illustrate the requirements of Army aviation.

ARMED AIRPLANES 1918

Boeing Fokker

Parroti

1918 Service

Rules Governing the St. Louis Air Races

Jointly Issued by St. Louis Air Board and Flying Club
of St. Louis Under N.A.A. Section

(Continued from last issue)

Flying Club of St. Louis Trophy

Monday, Oct. 1, 1923

This Trophy, donated by the Flying Club of St. Louis, shall be competed for by seaplanes of 40 hp. or less, and shall become the permanent possession of the entrants of the winning seaplane.

CONDITIONS OF CONTEST

(a) In order to stimulate interest among seaplane pilots, Avirex and X-ray pilots will not compete in this race.
(b) Engines must be 40 hp. or less. (Supercharged as given by the Manufacturer, *except* on the U.S. Air Service at McCook Field, where the engine is standard.)
(c) All seaplanes must carry a total load of 240 lb., evenly distributed in two cockpit, the load to consist of pilot and one passenger, with sufficient ballast, if necessary, to bring their weight up to the required amount. It is requested by the Contest Committee that all contestants bring ballast in lieu of passenger, in order to eliminate the risk in this respect. Under no circumstances may a crew cockpit be exceeded.
(d) The general condition and service of plane to be such that, in the opinion of the Contest Committee, it is safe and not a hazard to other contestants or spectators. The Contest Committee reserves the right to refuse to admit any seaplane which does not comply with these requirements.

(e) At the time of entry the entrant must supply the Contest Committee with a statement, giving the load and engine conditions, and the entrant, this statement to be properly witnessed before a notary public. The Contest Committee reserves the right to check the measurements of any engine entered and to demand the removal of a cylinder for that purpose.
The decision of the Contest Committee will be final.

DISTANCE

150 kilometers (93.23 miles), three turns around a closed course of 50 kilometers (31.07 miles), starting at St. Louis Field and north to first pylon, then southwest to second pylon, then east, passing over capture balloon located approximately 2 miles from St. Louis, then west to third pylon, then west to the south of the country representing the foreign nation from which the winning contestants shall enter, and to St. Louis Field.

THE WINNER

01 first place shall be the pilot who has completed the full course in the shortest elapsed time, and of second place the second best time, etc., provided the pilot is not disengaged. The Liberty Engine Builders' Trophy will be awarded to the entrant of the winning seaplane and the pilot money will go to the entrants of the winning seaplane.

NUMBER OF CONTESTANTS

Maximum number: Four
Minimum number: Two

CASH PRIZES

First prize \$500, second prize \$300, third prize \$200

Liberty Engine Builders' Trophy

Monday, Oct. 1, 1923

The trophy shall be permanent and competed for annually by observation-type three-place open-cockpit flying boats.

The trophy shall be awarded to the entrant of a race engine around a closed circuit from point to point and shall be conducted under such rules governing race runs as may be prepared from time to time by the Contest Committee of the National Aeromarine Association. The Contest Committee, with the consent of the Board of Governors of the same, shall have the privilege of conducting race runs among entries from the United States Air Service, the Foreign Service, the Flying Club of St. Louis, and other Club or organizations.

The trophy shall be awarded each year to the Aero Club or chapter of the N.A.A. represented by the pilot of the winning machine, and this body shall be entitled to the possession of the trophy until the next year.

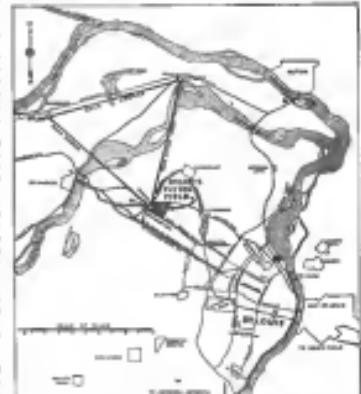
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cont'd., at which time the trophy shall be presented to the donor. Suitable bonds for its proper care and return shall be required by the donor from each and every person or organization into whose possession the trophy shall at any time be delivered. Should the trophy be won by an entrant, it is the desire of the donor to have it carried for the same period of time to the embassy in the country representing the foreign nation from which the winning contestants shall enter, and to be



Sketch map showing location of Brookings Field, St. Louis, and 50-kilometer course for Neumann Av. Races.

Oct. 1-3, 1923

the United States Air Service, according to the decision of the Contest Committee of the donor.

Gold, silver and bronze decorations will be given to the pilots winning first, second and third places.

CONDITIONS OF CONTEST

(a) Factor of safety: 80 as loaded for start of race.
(b) Air speed greater than 80 m.p.h.

(c) Carrying the following "so-called load" and, in addition, carrying the "so-called load," however, fixed instruments, gas, oil and water for the course are excluded. Bomb racks, gun and machine guns may be removed. At the time of entry the entrant must supply the Contest Committee with a statement giving the load and stroke of the engine to be used in the race, the statement to be properly witnessed before a notary public.

(d) $\times 1600/35$ = engine displacement of motor used \times 30

= Contest load.

(e) Avirex. Four contestants and passengers may be included in the "so-called load," however, fixed instruments, gas, oil and water for the course are excluded. Bomb racks, gun and machine guns may be removed. At the time of entry the entrant must supply the Contest Committee with a statement giving the load and stroke of the engine to be used in the race, the statement to be properly witnessed before a notary public.

(f) All contestants must be certified to compete in the race.

(g) All contestants must be certified to compete in the race.

(h) All contestants must be certified to compete in the race.

(i) All contestants must be certified to compete in the race.

(j) All contestants must be certified to compete in the race.

(l) All contestants must be certified to compete in the race.

(m) All contestants must be certified to compete in the race.

(n) All contestants must be certified to compete in the race.

(o) All contestants must be certified to compete in the race.

(p) All contestants must be certified to compete in the race.

July 3, 1923

AVIATION

The Contest Committee reserves the right to check the measurements of any engine entered and to demand the removal of a cylinder for that purpose. In case of a question as to the cylinder displacement of the engine, the Contest Committee reserves the right to use the cylinder displacement figures given for each engine by the Engineering Division, McCook Field. The decision of the Contest Committee will be final.

500 kilometers (310.62 miles)—one turn around a closed course of 50 kilometers (31.07 miles), starting at St. Louis Field and north to first pylon, then southwest to second pylon, then east, passing over capture balloon located approximately 2 miles from St. Louis, then west to third pylon, and returning to St. Louis Field.

THE WINNER

Of the first place shall be the pilot who has completed the full course in the shortest elapsed time, and of second place the second best time, etc., provided the pilot is not disengaged. The Liberty Engine Builders' Trophy will be awarded to the entrant of the winning seaplane and the pilot money will go to the entrants of the winning seaplane.

NUMBER OF CONTESTANTS

Maximum number: Four

Minimum number: Two

CASH PRIZES

First prize \$500, second prize \$300, third prize \$200

Aviation Country Club of Detroit Trophy

Tuesday, Oct. 2, 1923

The Trophy shall be permanent, and competed for annually by airplanes of the light observation class.

The annual contest shall be in the nature of a race, either around a closed circuit from point to point, and shall be conducted under such rules governing race runs as may be prepared from time to time by the Contest Committee of the National Aeromarine Association. The Contest Committee, with the consent of the Board of Governors of the same, shall have the privilege of conducting race runs outside of the Aviation Country Club of Detroit Trophy, or of an observation privilege, under sanction, to any other club or organization.

The Trophy shall be awarded each year to the Aero Club or Chapter of the National Aeromarine Association represented by the pilot of the winning machine, and this body shall be entitled to the possession of the Trophy until the next year. In case of a question as to the cylinder displacement of the engine, the Contest Committee reserves the right to check the measurements of any engine entered and to demand the removal of a cylinder for that purpose. In case of a question as to the cylinder displacement of the engine, the Contest Committee reserves the right to use the cylinder displacement figures given for each engine by the Engineering Division, McCook Field. The decision of the Contest Committee will be final.

$\times 25/2$ = Figure of merit, where W = weight of load passengers, and M/P = horsepower developed constant, and SP = average speed of competing airplane in miles per hour (must not be less than 80). The horsepower developed by the contestants will be determined as in Part 4, under "Conditions of Contest." The contest load shall consist of the disengaged, and the speed money will be paid to the entrants of the winning airplane.

As far as possible every entrant entering the Contest Committee with a statement of the number of passengers the competitor is to use in the race, the entrant to be properly witnessed before a notary public. The Contest Committee reserves the right to demand the removal of a cylinder for the engine, the Contest Committee reserves the right to use the cylinder displacement figures given for each engine by the Engineering Division, McCook Field. The decision of the Contest Committee will be final.

LOADING THE LOAD
The load must be properly weighed in the plane before 8 a.m. Tuesday, Oct. 2. The load must be properly weighed and weighed by the Contest Committee and names of pilot and passengers (if any) put on record. It shall be entirely the responsibility of the competitor to see that the load in his plane is properly weighed and sealed by the Contest Committee. Seats and loads will be checked by a member of the Contest Committee after the plane has loaded on completion of the race.

NUMBER OF CONTESTANTS
Maximum number: Six
Minimum number: Two

CASH PRIZES

Speed—First prize \$500, second prize \$300, third prize \$200

Efficiency—First prize \$500, second prize \$300, third prize \$200

Distance—First prize \$500, second prize \$300, third prize \$200

Maneuvers—First prize \$500, second prize \$300, third prize \$200

Maneuvers Exchange of St. Louis Trophy

Tuesday, Oct. 2, 1923

This trophy, donated by the Merchants Exchange of St. Louis, shall be awarded to the pilot of a large capacity airplane capable of carrying a pay load of 2000 lb. or over, and shall become the permanent possession of the entrants of the winning airplane.

An Aeronautical Survey of South America

Great Opportunities Await Contractors, Pilots and Capitalists—South of the Panama Canal

The following notes on the present situation of aviation in South America, and on the opportunities that exist for aerial enterprises are excerpts from a lecture given March 5, 1932, by George F. Lusk, F.R.C.S., in the Sectional Branch of the Royal Aeronautical Society. As the lecturer recently returned from a business tour of the South American Republics, he is in a position to furnish accurate data concerning the present of flying as it exists in South America, enough information will do well to powder his conclusion, which he says: "Great opportunities await the aerial contractor, the pilot and the capitalist in South America. The continent is developing fast, and the series of transport essential to that development are ripe. The people, civilizationed by aviation, today in aviation with probably better grace than did our forefathers in the railway."—Editor.

Argentina

The Argentine Republic is the second largest country in South America, and has a population of 30,000,000, of which 2,275,000 are to be found in the Province of Buenos Aires.

Great railroads, built in 1881 and 1895, are in operation, but in 1921 the divided railroads became wholly to the general trust which except the country, and also to the failure of the French and Italian Missions to weather the storm. The year 1922 saw a renaissance of interest, due mainly to the initiative of the Army Aviation Authorities, who put forward a scheme for the establishment of air routes from the British Republics. The scheme was accepted at the 1922 Conference of El Palmar, the speakers being in addition to those to be created at Monte Caseros, Rosario, Santa, Córdoba, Mendoza, Neuquén and Gallegos, besides which 22 secondary stations and 130 emergency landing grounds were proposed. The negotiations between the Ministry of War, the Postal Department and the Ministry of Finance, which led to this project, were still in progress at the time of my departure.

Military aviation has made great progress, being well-organized and equipped with modern craft. The training of El Palmar is most efficiently carried out, and real merit is to be found among the instructing officers and pilots. At the present moment there are 1,000 men in the air force and 1,000 in the naval air force, and the 1,000 men in military attaches present that a degree of efficiency was shown equal to that to be found among many European countries today, and while the Brazilian Air Force is numerically stronger than that of Argentina, it is not as yet nearly as well-trained.

The Naval Air Force is not so advanced as that of the Army. Recently, however, on the Rio Fernández, the seaplane station, but it would appear that the Army has a much greater pull on the governments of the States than the Navy. The stations in use are nearly all Curtiss Flying boats, but there also a few French machines.

The British, French and Italian seem to be anxious to start flying, and the French, at least, to certain parts of the country, provided that they can get the exclusive right to exploit their chosen route, but the Government does not appear willing to grant rights.

Major Kingsley, formerly an R.A.F. officer, arrived in the country in 1919 and formed a company called the Standard Rio Plate Air Services. This company has been the first to have a regular aerial passenger service between Buenos Aires and Montevideo carrying mails and passengers. The service has been well-ordered during the summer months, the rest of the time being taken up with mail and the training of pilots, and the company possesses an excellent airfield at

El Indo. Last season it was found that the distance from Buenos Aires to the Argentine frontier was about 1,000 miles, and so great is the cost of fuel, over which are imposed road and airway taxes, that a prospective passenger to face. The same taxes were lost at the Montevideo end. To remedy this Major Kingsley visited England and purchased a number of Vickers amphibians so that future the service will start from the North Bank, Buenos Aires, and finish in the Harbors at Montevideo, via via veras. This will shorten the journey, which is to be 25 miles, or a few hours, faster to hotel at asique 2 to 25 miles, a very considerable saving.

The new service should be of great commercial utility. The aerial flying time should not exceed 65 min., and since provided that the fares charged are not too high, the will be well-advised and become a paying proposition. Adequate sources of revenue will be obtained by the mail charges, 11 airmail by rail connections to take them back from the capital to their respective franchises. By train such a fare often takes 25 hr., after which there may be a boat or steamer ride on land. By airplane the whole distance can be done in four or five hours, and the cost of a landing ground, at a rate double that of the present ground, will be a factor in the economy. Afternoon air to Rio Plate, Co. via Parana, has earned nearly 300,000 passengers and a fare cost 460,000 kilometers, a very creditable performance.

Another company, started by the British Commercial Company, called the British Argentine Airlines Co. "Capri" started operating a service between Buenos Aires and Montevideo. It is agreed that they will not grant Capri airmail or passenger rights and 15% of the earnings.

The German-Spanish scheme for a Zeppelin line from Berlin to Buenos Aires is beginning to take shape. The service is to be maintained by two airships having 250,000 cubic meters capacity, measuring 250 meters long and 31 meters in diameter. They are to have accommodations for 100 passengers, 200 crew, 10 tons of mail and 10 tons of cargo, but drawbacks would be found in the difficulty of transporting material and fuel to outfitting airfields, and in the necessity of the ground traversed for fueling landings.

The only Japanese air routes are those already mentioned, the United States Mission for training the Navy and Naval Air Service, and the French Mission for training the Army and Military Air Service. During the Centenary Colombian Capt. José Roldán and Lieutenant Frasval came out Rio on a special mission of aeronautical propaganda, chiefly to interest of the French Aeronauts Commission. They had three small airplanes, one of a reconnaissance type, Roldán, and two others, one of the first, the other of the second, of aerobatic flying over visited what a crew of 200,000 people. Then does the French government help its aircraft industry.

Day-riding is carried on as a social sport by Ortez Hammer on Argentina, at Rio and Mts. Belalca, of the Andes Range, and the French from Rio to the sea by Rio Santiago, a distance of 60 miles.

There are four civil schools in the San Pedro district which train pilots for the Army under contract from the Ministry of War. They are the Escuela de Fuerza Pública, using Curtiss biplane machines, the Escuela Compradores, using Curtiss biplane machines, the Escuela Curtiss (by Ortez Hammer), using Curtiss machines, and the Escuela Naval, using Aviaé machines.

An air conference has been agreed between the Uruguayans and Argentines governments regulating the traffic between the two countries, and the negotiations between the Postal Authorities of the two countries have been brought to a satisfactory conclusion.

The possibilities of successfully running airships or seaplane services in Uruguay itself, for mail or passenger traffic are not great. The railway and telegraph communications with the interior are adequately bad, but on the other hand,

the population in the country districts is scanty, for out of the total population of 3,000,000 a third of this is in Montevideo alone. An aerial passenger service from Rio to Asuncion, the Capital of Paraguay, with halts at Colonia (Uruguay), Funes (Argentina), Corrientes (Argentina) and Posadas (Paraguay), might be a paying proposition for the future.

Brazil

Brazil, which is the largest of the South American Republics, has a population of over 30 millions and an area of 5,000,000 sq. miles, and is the fourth largest country in the world.

It has a well-trained Naval and Military Air Forces, each augmented apparently, amounting to some 100 aeroplanes in all, the Naval role being played by the Americans and the Military by the French. The machines in use are either American or French, the Navy having mainly Curtiss flying boats and the Army, Hispano, Bleriot, Farman, Maurice Farman, and some others, and the Military by Curtiss. The two naval aviations are located at Rio de Janeiro and Porto Alegre, a military flying school at São Paulo, and others are to be established as soon as the finances of the country permit.

Of commercial services there are actually none, but two new airmail routes are projected from Rio to Porto Alegre, the one along the coast touching at Santos, Parana and the other inland through São Paulo, Minas Gerais, and Paraná and Ceará. These services at the present are intended primarily for use of the Naval and Military Air Forces, and will be managed and controlled by the Ministry of Marine and Ministry of War, respectively, but the difficulties they will be available for mail and postal purposes. The Government has agreed to have up to 4,000 cubic meters of airmail or 600,000 kg. of passengers per month. A carriage and freight service between Rio, Santos and São Paulo, Uruguay, serving various centers between those two ports was projected, but lack of financial support caused the project to fall through.

The prospects for running airships or flying boat services for mail and passengers will be fairly good, inasmuch as these services are at present served by railroads, and the coastal boat services between the two countries are not so rapid, but drawbacks would be found in the difficulty of transporting material and fuel to outfitting airfields, and in the necessity of the ground traversed for fueling landings.

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The possibilities of successfully running airships or seaplane services in Uruguay itself, for mail or passenger traffic are not great. The railway and telegraph communications with the interior are adequately bad, but on the other hand,

there are many only British material. The Naval Service, whose temporary bases are at Valparaíso and Quinteros, has been triggered under Lt. Col. J. L. Tressler, into R.A.F., with two French machines. The material consists of three Avro, four Short, two Avro, two Hispano, and two Hispano-Suiza Type flying boats.

The Military Air Service, which was trained by a British mission headed by Major Scott, late R.A.F., has its headquarters at the airfield, Esq. Lauro, near Santiago, and the Argentine aviation school at El Bosque, which in now in use. It is well equipped to teach the latest aeronautical methods, including flying, as well as the usual military routine, including directional wireless and wireless telephony. On the airfields are larger bi- and four-engine aircraft capable of holding ten or twelve passengers of the Avro or Bristol types, and there are also a number of monoplanes and monomotors. The material consists of two Avro, one S.E.5, one R.A.F. and several monomotors, two DH.9s and two Avro 584s. The two airfields are equipped repair shop employing some 20 mechanics. All the early-mission British machines were presented to Chile by Great Britain, in part payment for the war during the War of Chilean Battalion Latouche, who assumed during the war of Chile.

As regards Commercial Aviation, this does not exist at present. The principal difficulty in the way of establishing airmail services is the route through Chile, which is extremely hazardous, and might exclude the use of the airplane except for the Valparaíso-Santiago route. A service between Chile and Uruguay, with calls at Esquimalt, Santos, Ceará, and Asuncion, and Asuncion, has been made by the British airmail British and French aircraft using flying boats. The difficulty, however, is that the two harbors are harbors, and the almost perpetual heavy swell experienced along the West Coast would make the landing at these ports somewhat perilous. Such a service, however, if it could be worked, would be an attractive boon to the trade of the country, as at the present time the communications for mail and passengers are slow and erratic.

Peru

Peru, which has an area of 500,000 sq. miles and an estimated population of 5,000,000, presents the nucleus of an efficient Air Force, under Commandant Juan Leguia, son of the President, who served with the British in the 18th Squadron R.N.A.S. during the Great War and was the D.F.C. The Naval Service has been trained by Capt. W. S. S. of the R.N.A.S. and the French.

The Military Air Service, using mainly Curtiss flying boats, has a number of French, British and American machines. It is not so efficient as the naval service, but in the summer of last year Commandant Leguia, a Peruvian of Irish descent, came to Peru from Ireland and obtained the services of Major Maclean, late R.A.F., to set up an airfield at Callao.

In 1929 the French sent out a mission, but at January 25, 1930, their chief created and was lost, and this took away a great deal from their prestige. The British firm of Aérospatiale and a mission in Peru, and succeeded in getting two of these machines purchased by public subscription and presented to the Peruvian Air Force.

The principal airfields are at Lima and Arequipa. Training now in Civil Aviation, there is one commercial aviation company, the Compañía Nacional Aeronáutica, Lima, which was formed in July, 1930, with American capital, and they are agents of the Curtiss Co. They started a service between Callao and Lima, but this had to be abandoned owing to lack of support, the reason being that there is an excellent local railway system, and the cost of flying is only 20 cent. A mail service along the coast has been established, making bus as far as Callao, and the cost of carrying airmail is 10 cent. of the heavy Pacific mail, making mailing difficult.

In considering possible air routes, apart from the coastal air, the most important that immediately strikes me is that along the Pacific with the inland port of Iquitos, 2,375 miles from the sea, from the Atlantic coast and 600 from the Pacific. In 1928 Major-Commander G. M. Dryden

of the Argentine company was recently sent to Rio de Janeiro to examine the possibility of establishing airmail services between the two countries, and found no difficulties in the way.

B.N.A.B. made the extremely hazardous journey from Passau to Linz to make an air route reconnaissance of the Danube from the coast to the latter town. The four possible routes were as follows:—

1. The Pechs trail from Linz to Grein and thence to Salzburg.—Flying distance, 750 miles; present time, 34 days, flying time, 150 hr.
2. Traun to Salzburg and Parson, thence by the Haslach River to Linz.—Present time, 300 miles; present time, 45 days, flying time, 75 hr.
3. Passau, Chiemsee, Salzach, Inn, Danube and the Haslach River to Linz.—Flying distance, 400 miles; present time, 61 days, flying time, 90 hr.
4. Passau or Chiemsee to Salzburg, thence through the Pechs trail to Linz.—Present time, 30 days, flying time, 60 hr.

Of these the first would appear the most in account of the lower height of the Alps, at this point some 6,000 ft., and the possibility of utilizing the Rhine River for slighting in case of necessity.

In the latter part of last year an American aviator named Finsen practically accomplished this flight, route No. 3, in 40 days, flying time, 100 hr., and the last 100 miles in 48 hr. after starting to within 90 miles of his destination, having had to land in a violent storm at the point where the Rio Tinto joins the Magdalena River. He accomplished this remarkable flight in a Curtiss Oriole with a 90-hp. Curtiss engine, taking only 6 hr. to fly the 1,000 miles from Bogota to the point where he had to land, and spending 20 hours of rest, food, sleep, and landing places, whether on land or water, before he established about every 200 miles, those on the east of the Andes being supplied from the Atlantic coast, and those on the west from the Pacific. Adequate supplies would be required, and the original money should be increased to \$20,000,000 to bring the budget to a reasonable sum.

The benefits of such a service are obvious, and it would bring the reported area within 20 hr. of the Pacific coast instead of 22 days as at present.

Calendar

Several air military aviation schools are said to exist at the moment, and one is continuing to be organized for training in the use of aircraft in the construction of fortifications. The lack of the aerial arm, however, is simply remedied by the wonderful progress that has been made in Commercial Aviation, both for the carrying of mails and passengers.

Very other country on South America, and few in Europe, possesses such a complete system of air mail as does Chile. This, and this is largely due to the fact that the Chileans have a strong sense of the importance of the confirmation of the neutrality of their aerial communications. The advent of the airmail and flying mail has been instrumental in solving a problem which seemed insoluble to other nations.

Before airmail was established the sole artery of communication with the interior was the Magdalena River, which is navigable for some 800 miles as far as Barranquilla. The shifting sand and shoals drift, however, under the direction of such a journey, a matter of conjecture, and mail matter from this country often took as much as five or six weeks, or it was impossible to get a reply to a letter in a timely manner. The arrival of the airmail at Barranquilla at destination, and services are now operated by the Colombian-American Air Transport Co. on the following schedules:

Barranquilla-Guadalajara.—This is a weekly service leaving Barranquilla every Tuesday and Friday and arriving at Guadalajara the same day, a distance of some 1,000 miles, with stops at Bogota, Cali, Popayán, Puerto Berrio, and Medellin, for the delivery of mail. From Puerto Berrio, the port on the Magdalena for Medellin, the mail is taken by special messenger to the latter town, and the mail in the case of Medellin, on Manizales, and at Guadalajara for Bogota, Bogota and Tucumán. Mail forwarded to the former is sent to Madrid, and to the latter to Mexico City, and to the latter at Matamoros, New Mexico, via Tuxtla and San Blas.

Letters addressed to other cities in the interior of the Republic are started at the river port nearest to the National Post Office of the district in which the town is situated.

Colombia-Barranquilla.—This service is the same as the former, only reversed, the departure being on Wednesdays and Saturday. The Wednesday service makes connection with the Cycle Line passengers sailing on Friday from Puerto Colombia to New York. Mail from Bogota to New York takes fourteen days. It is one connects with Eldorado and Fyffe passengers arriving on Thursday and Saturday from Santa Barbara for Madrid, and taking by this route 20 days from Bogota to London.

Barranquilla and Cartagena.—This service flies every Monday, returning to Barranquilla the same day, in time to make connection with the Tuesday Barranquilla and Guadalajara service.

Barranquilla and Santa Marta.—This service is the last, returning the Barranquilla and Guadalajara line and Eldorado and Fyffe passengers. The airplanes leave Barranquilla every Tuesday and return the same day to connect up with the Puerto Barranquilla and Guadalajara service.

The services represent a total length 1,250 miles. The changes in mail and mail matter, being in 75 hr. per 1/2 mi., but not including stops.

The Colombian Aeroplane Air Transport Co. has a contract with the Government to carry the mail for five years, being subsidized to the extent of \$100 or \$120 per trip from Barranquilla to ports on the Magdalena River. During the three months ending October this company made 287 flights, totaling 1,250 hr. and carrying 2,000 passengers and 20,200 pieces of mail and freight, all of which were in Great Jacksonian monoplanes. For a country with only 100,000 population this is a wonderful record.

Great opportunities await the aircraft contractor, the pilot and the capitalist in South America. The continent is developing fast, and the means of transport essential to that development are not yet fully developed. The airplane alone can bring the continent with probably losses greater than did oil development to the railway. The meteorological conditions are far better than those found in Europe. With a ratio of general trade to something like its per-war pre-peak, South America should prove a large and steadily increasing base for aircraft, but it will want the very latest in design and construction, not surplus war sheet.

British Assistance to Racing Aircraft

The British Air Ministry announces that with a view to encouraging the entry by British aircraft of British racing aircraft in international air races the Air Council has decided to make available to British racing aircraft for the next international, 45,000 hr. in each case, the winning aircraft (salient regions) in both the Aeritalia Derby and the Schneider cup races, provided that the aircraft is in each case, British designed, built, and owned, and is of a type which has previously won such races.

The Aeritalia Derby is an international race, which is being held this year at the August Bank Holiday, at Brooklands, in one type of landplane or amphibian. The Schneider cup race, which will take place this year at Cowes on Sept. 27 and 28, is the principal international race open to seaplanes or amphibians.

Aircraft in Warfare

In the campaign Spain is waging against the rebellious Wolfish tribes in Northern Morocco, military aircraft are used to great advantage. The Spanish air force in Morocco are said to consist of five squadrons of twelve planes each, mostly of Fiat biplanes.

In a recent encounter the Spaniards used three fighter squadrons to break up and disperse a raiding concentration which suffered severe casualties from aircraft bombs and machine gun fire.

National Balloon Race Entries

The following entries was received by the Contest Committee of the South American Association for the 14th National Balloon Race which will be held from Barranquilla on July 4.

1. Ray P. Donahue, pilot, and P. A. Kirsch, Springfield, Ill., solo. Probability standard variegated balloons.

2. Louis J. Jenkins, B. Jordan, A. S. pilot, Scott Field, and Louis May, T. Major, A. S. solo. Akron, Ohio. A.C.A. type balloons.

3. Capt. Lester T. Miller, A. S. pilot, and Loret Courtland, W. Brown, A. S. solo, Scott Field. McCook Field type balloons.

4. Loret, Robert W. Blundell, A. S. pilot, McCloud Field and Louis, John W. Blundell, A. S. solo, Cheyenne Field. McCook Field type balloons.

5. Captain E. C. Andrews, pilot, and C. G. Andrews, solo, Aberdeen. Standard variegated balloons.

6. Warren B. Hines, pilot, Wrentham, Mass., and H. H. Rosen, solo, Rockford, Ill. Probability standard variegated balloons.

7. Louis J. B. Lawrence, U.S.N. pilot, and Loret, T. F. W. Blundell, U.S.N. solo, Waukegan, Ill. Goodyear standard balloons.

8. Louis F. B. Culver, U.S.N. pilot, and Loret, T. D. Blundell, U.S.N. solo, Hampton Roads naval station. Standard balloons.

9. Loret, T. D. Blundell, U.S.N. pilot, and Loret, T. B. Naki, U.S.N. solo, Lakehurst naval air station. Goodyear standard balloons.

10. Loret, Curtis J. P. Kastell, U.S.N. pilot, and Loret, T. C. Naki, U.S.N. solo, Lakehurst naval air station. Goodyear standard balloons.

11. J. A. Bonham, pilot, and J. M. Hayes, solo, Goodyear Dry & Rubber Co., Akron. Goodyear standard balloons.

12. Capt. E. M. McCollum, A.S.G.R.C. pilot, Baltimore, and Loret, Charles H. Bond, A.S., Aberdeen, British type balloons. American Legion entry.

At the last minute the entry of H. R. Hensgwell is announced. The name of his pilot is not known. Mr. Hensgwell reported in last year's National Balloon Race, and also in the Gordon Bennett International Balloon Race. The entry of Ward T. Van Doren, pilot, with Herbert T. Thaden, is also unaccounted for.

Aeronautical Chamber of Commerce

Income in Membership

According to the increasing importance of the activities of the Aeronautical Chamber of Commerce of America, it is estimated by an committee that the income from the Chamber has increased a little since this year ago with the Chamber having approximately 350 per cent, more men being shown as members. Among these recently accepting membership are the following:

Aeronautical Development Corp., General Motors Bldg., Detroit; American Airlines, Inc., Elizabeth, N. J.; Dayton Wheel and Co., Dayton, Ohio; Eberhart Steel Products Co., 612 E. Ferry St., Buffalo, N. Y.; Great Lakes Aerial Photographers Co., 12412 Mayfield Rd., Cleveland, Ohio; Heslerite Mfg. Corp., 999 Chamber of Commerce Bldg., Los Angeles-San Pedro; Mr. Harry Vassering, American Exp., 14 E. Jackson Bldg., Chicago; Sperry Gyroscope Co., Manhattan Bridge Plaza, Brooklyn, N. Y.

Stromberg Motor Division Co., 44 E. 25th St., Chicago; U. S. Touring Information Bureau, Inc., Winona, Iowa; Wisconsin Mills, New Bedford, Mass.; Worcester Gear Co., Worcester, Mass.

The Silverwing Corp. of America, 30 East 70th Street, New York City; U.S.A. First Stat. Rd. Bldg., Milwaukee; Robert H. Depew, 136 W. 26th St., New York City; Otto Bauer, Curtis Aeroplane Export Corp., c/o U. S. Consulate, Rio de Janeiro, Brazil.

C. S. Jones, Curtis Aeroplane & Motor Corp., Garden City, N. Y.

Thomas Hart Kennedy, 1224 Bway, Newark, N. J.

Laurence Levee, Curtis Aeroplane Export Corp., 815 Van Meter, Buenos Aires, Argentina.

Werner J. Strelakoff, 1313 First Nat'l Bldg., Milwaukee, Wis.

Fred M. Riddell, Spokane, Wash.

W. Y. Thaden, Aircraft Development Corp., General Motors Bldg., Detroit.

Amundsen Abandons Polar Flight

Capt. Roald Amundsen has abandoned his proposed flight from the North Pole to Siberia, it was announced June 18, in Christiania, by the Norwegian Minister of Defense. The Norwegian government's message from Leon Amundsen, brother of Roald, read:

"Just received the following telegram, dated Nov. 20, 1932. 'Trial flight held May 12. Result very satisfactory. Sorry forced to abandon pre-planned flight. Have written to Amundsen. Captain Amundsen planned to start an air service from Wainwright, Alaska, to Fairbanks, Alaska, 72 miles northeast, and with his assistant, Loret, Oscar Blundell, dash across the North Pole and land in the Spitsbergen Islands, in the Arctic Ocean, 600 miles north of Norway."

Starting from Seattle last June as the exploration ship Magpie he passed the Weather of Nome, leaving there in April for Wainwright, where he expected to begin his Arctic flight that month. His last news is reflected as planned to take off on June 20, or earlier, if the weather would permit. The surprise for the flight left at Wainwright during the winter after Captain Amundsen had left the Magpie, which at latest news was located in the Arctic sea, was the probability that she was drifting slowly to the Pole.

Preparations had been made by the Norwegian Government and Captain Amundsen's assistants to land ship in Spitsbergen, or to get aid as far as possible, should making overtake him during the flight.

New British Aircraft Carrier

According to an Associated Press dispatch from London, the British Admiralty has laid down a new type of aircraft carrier which has two deck cranes, by large lifts. The upper in the hurricane deck, and the lower in the deck workshop for carrying up repairs. There are also supplies of necessary spare parts, ranging from a propeller to a complete engine, all ready for instant use.

The carrier will have a search-light and landing flight tower, which a crew of 600 men will be needed to man at night. There are also cranes for hoisting on board flying boats which need repairs.

It is now possible for the fastest airplanes to land with safety on the deck of an aircraft carrier. An arrangement of pulley blocks, which is unique in a ship, will enable a machine which runs at a speed of eight miles a minute can land in a distance of not more than forty feet.

Helicopter Hovers 9 Min.

The helicopter of Ernesto Gómez in its latest trials is reported to have lifted three persons to a height of five meters. The man who also took part with the other member of passengers to heights of 10 meters.

The Colombian helicopter has been made possible through a construction. It now has to credit a total of 2 hrs. in flight, with one flight of 8 min. It also accomplished a nonstop flight of 100 meters.

After the first flight, which was won out, is checked, the inventor will attempt a longer flight in a closed circuit which is out of the grounds provided by the French air department for purchase of the machine.

Naval Orders

Lt. John D. Alves, USN—Detached Aircraft Squadron Battle Fleet, to Naval Air Station, Pensacola, Fla.
Lt. Sherman H. Quarles, USN—Detached Bu. Aeronautics; congressional accepted T-27-22.

Lt. Frank C. Fiske, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, San Diego, Calif.
Lt. Valery C. Fiske, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Lt. Thomas L. Sprague, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Lt. Frank H. Whistner, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, San Diego, Calif.
Ens. Monroe F. Edgell, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Ens. William S. Greene, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Ens. George H. Hauseman, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.

Ens. George L. Redfern, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Ens. Kenneth A. Schon, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Pensacola, Fla.
Lt. Arthur C. Morris, USN—Detached TBS-100, Idaho 16-22, to Naval Air Station, Pensacola, Fla.

Lt. John G. Ferrell, USN—Detached Naval Air Station Pearl Harbor, T. H., to Aircraft Squadrons, Battle Fleet.
Lt. Howard P. Gossen, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Scouting Fleet.
Lt. Virgil C. Mearns, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Scouting Fleet.

Lt. Allen T. Price, USN—Detached Naval Aircraft Factory, Philadelphia, Pa., to Aircraft Squadrons, Scouting Fleet.
Lt. Howard R. Stillman, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Scouting Fleet.

Lt. (C) Joseph H. Green, USN—Detached Aircraft Squadrons, Battle Fleet, to Naval Air Station, Lakewood, N. J.
Ens. Joseph C. Alles, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Anacostia, D. C.
Ens. William H. Goss, USN—Detached Aircraft Squadron, Battle Fleet, to Naval Air Station, Hangar Roads, Va.
Ens. Louis A. Morin, USN—Detached TBS-100, to Naval Air Station, Pensacola, Fla.

Ens. Frederick H. Owsley, USN—Detached Naval Air Station, Pearl Harbor, T. H., to Aircraft Squadrons, Battle Fleet.
Ens. Curtis D. Faister, USN—Detached TBS-100, to Naval Air Station, Anacostia, D. C.
Ens. George E. Baker, USN—Detached Aircraft Squadrons, Battle Fleet, to Naval Aircraft Factory, Philadelphia, Pa.
Ens. John E. Brewster, USN—Detached Naval Air Station, Anacostia, D. C., to Naval Aircraft Factory, Philadelphia, Pa.
Lt. Comdr. Henry B. Codd, USN—Orders 5-15-22 revoked, redesignate date Bureau of Aeronautics, Washington, D. C.

Ens. George H. DeBuss, USN—Detached TBS-100, to Naval Air Station, Pensacola, Fla.
Lt. Edward C. Clark, USN—Detached Aircraft Squadrons, Battle Fleet, to Naval Aircraft Factory, Philadelphia, Pa.
Ens. John E. Brewster, USN—Detached Naval Air Station, Anacostia, D. C., to Naval Aircraft Factory, Philadelphia, Pa.
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Ens. George H. DeBuss, USN—Detached TBS-100, to Naval Air Station, Pensacola, Fla.
Lt. Edward C. Clark, USN—Detached Naval Air Station, San Diego, Calif., to Aircraft Squadrons, Scouting Fleet.
Lt. Donald E. Duran, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Battle Fleet.
Lt. Arthur E. Engle, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Battle Fleet.
Lt. (C) A. Scott, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Battle Fleet.
Lt. (C) Van Rosenthal, Moan, USN—Detached TBS-100, Wright, to USN Bureau.

Ens. Albert E. Baker, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Battle Fleet.
Ens. William Williamson, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Battle Fleet.
Mark Kepp W. Cernell, USN—Detached Naval Air Station, Pensacola, Fla., to Aircraft Squadrons, Scouting Fleet.
Black Walter B. Jones, USN—Detached Naval Aircraft Factory, Philadelphia, Pa., to TBS-100, Wright.

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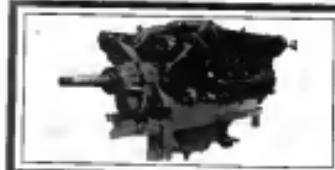
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